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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,732	03/30/2001	Yukio Hemmi	016887/1038	5467
22428	7590	06/08/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			KEITH, JACK W	
		ART UNIT		PAPER NUMBER
				3641

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/821,732	HEMMI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jack W. Keith	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 March 2005.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11, 13, 14, 16-18 and 24-34 is/are pending in the application.
- 4a) Of the above claim(s) 6-8, 10, 11, 13, 14 and 16-18 is/are withdrawn from consideration.
- 5) Claim(s) 28-34 is/are allowed.
- 6) Claim(s) 1-5, 9, 24-27 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/28/05.
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 3/28/05 have been fully considered.

The outstanding 112, first paragraph rejection of the 5/24/04 Office are withdrawn.

The outstanding 112, second paragraph rejection of the 5/24/04 Office are withdrawn with the exception of section 8.a. which has been included below.

Applicant's evidence in support of not all TiO<sub>2</sub> materials exhibiting ion exchange and/or superhydrophilic properties is persuasive. However, claims 1-5, 9 and 24-27 are still rejected as TiO<sub>2</sub> is not the only material claimed. ZrO<sub>2</sub> still reads on Skarpelos. Additionally it is noted that there is no indication in the disclosure or applicant's additional evidence that ZrO<sub>2</sub> is a superhigh hydrophilic substance. The 102 and 103 rejections of prior office action regarding claims 1-5, 9 and 24-27 are included below.

### ***Claim Rejections - 35 USC 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-5, 9 and 24-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3 - particularly claim 1 recites the limitation "water drops". In the nuclear environment steam does not inherently possess water droplets. Water droplets entrained in steam represent a hazard to downstream components such as steam

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turbines. Carry-over of said steam/water droplets damages turbine blading and is thus not desirable from an operational standpoint or an economical standpoint (i.e., system damage, power outage, etc.). The water droplets in question here are from condensation of the steam on the radioactive material separating device, not from the steam passing through the pressure vessel or turbine.

***Claim Rejections - 35 USC 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Skarpelos et al (5,028,384).

Skarpelos discloses a structure inherently capable of meeting applicant's claimed inventive concept. A nuclear reactor power plant employing a reactor (14), a steam turbine (24) and a radioactive material separating and removing apparatus (20) located inside the reactor pressure vessel. Skarpelos further discloses that the radioactive material separating device or steam dryer is coated with TiO<sub>2</sub> and/or ZrO<sub>2</sub> (i.e., metal oxide). TiO<sub>2</sub> as set forth by applicant (see specification page 7, ln 24+) is a known Superhydrophilic substance.

Statements of intended use or field of use, "adapted to", "adapted for" or "capable of" clauses are essentially method limitations or statements of intended or desired use. Thus, these claims as well as other statements of intended use do not

serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP ' 2114 which states:

A claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus@ if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon (i.e., steam or water droplets) does not serve to limit an apparatus claim.

As to limitations which are considered to be inherent in a reference, note the case law of In re Ludtke, 169 U.S.P.Q. 563; In re Swinehart, 169 U.S.P.Q. 226; In re Fitzgerald, 205 U.S.P.Q. 594; In re Best et al, 195 U.S.P.Q. 430; and In re Brown, 173 U.S.P.Q. 685, 688.

See figure 1 and columns 1-2, Ins 60-16; column 4, Ins 56-68 and column 5, Ins 1-23.

### ***Claim Rejections - 35 USC 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

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subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skarpelos et al ('384) in combination with the admitted prior art (specification page 7, ln 24+) or Zeng et al (JP 11-285635) and Hayakawa et al (WO 96/29375).

Skarpelos discloses applicant's inventive concept; however, if not apparent that Skarpelos sets forth an operable Superhydrophilic substance ( $TiO_2/ZrO_2$ ) then applicant admits (see specification page 7, ln 24+) Superhydrophilic substance utilizing  $TiO_2$  in combination with a binder are well known.

Zhang (see US equivalent 6,217,999) further teaches a known prior art Superhydrophilic substance via Hayakawa et al (WO 96/29375) utilizing a binder material  $SiO_2$  in association with  $TiO_2$ .

Accordingly, modification of Skarpelos to have included the known Superhydrophilic substance teachings (i.e., incorporation of a binder material) would have been obvious to one having ordinary skill in the art at the time the invention was made as such results are in no more than the use of conventionally known materials/designs available within the art as is evident by the admission by applicant or the teachings of Zeng and Hayakawa.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Skarpelos et al ('384) as applied to claims 1-5 and 24-27 above, and further in view of Cowan II et al (5,465,278).

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As set forth above Skarpelos discloses applicant's inventive concept; however, from the figure of Skarpelos it is not clear if the steam dryer (20) (radioactive material separating device) is corrugated.

Referring to figure 1 of Cowan II et al ('278) one can clearly see that steam dryer located within the pressure vessel are corrugated. Accordingly, having a corrugated steam dryer is known within the art, such would be advantageous within Skarpelos reactor in order to increase the exposed surface area of radioactive material separating device. Additionally, substitution of one steam dryer for another type would have been obvious to one having ordinary skill in the art.

Regarding claim 9 - product by the process - the patentability of a product does not depend on its method of production. If the product (corrugated plates) in the product by process claim is the same as the prior art, the claim is unpatentable even though the prior art product was made by a different process. See In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Also see MPEP § 2113.

Accordingly, the process of coating the steam dryer in Skarpelos meets applicant's claimed inventive concept.

### ***Allowable Subject Matter***

9. Claims 28-34 are allowed.

### ***Conclusion***

10. This application contains claims 6-8, 10, 11, 13, 14, and 16-18 are drawn to an invention nonelected with traverse in Paper No. 1/13/03. A complete reply to the final

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rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack W. Keith whose telephone number is (571) 272-6878. The examiner can normally be reached on Monday-Thursday 6:30-5 p.m., with Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on (571) 272-6873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jack W. Keith  
Primary Examiner  
Art Unit 3641

jwk  
June 3, 2005